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Stack4Things: Integrating IoT with OpenStack in a Smart City context

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Abstract

© 2014 IEEE. As the adoption of embedded systems, mobiles and other smart devices keeps rising, and the scope of their involvement broadens, for instance in the enablement of Smart City-like scenarios, a pressing need emerges to tame such complexity and reuse as much tooling as possible without resorting to vertical ad-hoc solutions, while at the same time taking into account valid options with regards to infrastructure management, and other more advanced functionalities. In this sense, a widely used and competitive framework for Infrastructure as a Service such as OpenStack, with its breadth in terms of feature coverage and expanded scope, looks like fitting the bill. This work thus describes rationale, efforts, and results so far achieved, for an integration of IoT paradigms and resource ecosystems with such a kind of Cloud-oriented environment, by focusing on a Smart City scenario, and featuring data collection and visualization as example use cases of such integration.

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Keywords

AMQP, Ceilometer, CEP, Cloud, CoAP, IaaS, IoT, MOM, OpenStack, REST, Smart City